Are You Water Smart?

Take the Water test!

1. **Some say the abundance of beautiful complexions in the Northwest is because of the rain. Moisture is good for the skin. What % of your skin is water?**
   a) 20% b) 50% c) 70%

2. **If you drank 2 quarts of Redmond tap water every day for one year (like you should), how much would it add to your annual water bill?**
   a) $0.35
   b) $3.00
   c) $12.00

3. **What % of all the water on Earth is available to its 7 billion people for drinking?**
   a) 1% b) 5% c) 10%

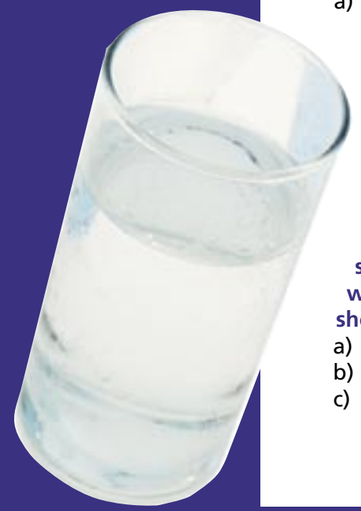
4. **Unless you have a low flow shower head, how much water will your teenager's 15 minute shower use?**
   a) 25 gallons
   b) 80 gallons
   c) 120 gallons

5. **The most common reason for water shortages in the rainy Northwest is:**
   a) low aquifers
   b) insufficient snow pack in the mountains
   c) a late summer drought

6. **Placed end to end there is enough water main in Redmond to stretch from City Hall to:**
   a) North Bend
   b) Ellensburg
   c) Spokane

7. **Redmond inspects the insides of its seven water tanks and reservoirs by:**
   a) draining them and sending in a crew
   b) lowering a TV camera into the water
   c) sending in divers in disinfected scuba gear

8. **An aquifer is:**
   a) the thick coat of an aquatic mammal
   b) a bluish/green pine tree
   c) an underground water-bearing formation



Answers: 1-c, 2-a, 3-a, 4-b, 5-b, 6-c, 7-c, 8-c.

Este informe contiene informacion muy importante sobre su aqua beber. Traduzcalo o hable con alguien que lo entienda bien.

"本报告含有饮用水问题的重要信息. 请人翻译或与懂英文的人交流一下."

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Water Quality Report

The City of Redmond is proud to present this Report on Your Drinking Water, for the year 2004.

The purpose of this report is to help you make informed decisions about the water you drink.

In this report you will learn where your water comes from, what is in your tap water, how your tap water is protected, treated and monitored and how you can become involved in decisions affecting your drinking water.

Your Drinking Water

Safe Drinking Water is Our Highest Priority!

Redmond, Washington

The City of Redmond has a hybrid water system.

Residents on the west side of the Sammamish River and in Redmond Ridge and Trilogy drink water that comes from the Cascade Mountains.

"From the Cascade Mountains to Your Tap"
The Tolt Watershed

The Tolt Reservoir and Watershed are located 15 miles east of Redmond in the Cascade Mountains. Rivers, streams and snowmelt are impounded here to make up the reservoir supply. The water travels through a supply pipeline to Redmond and other eastside cities and water districts on its way to Seattle. The Watershed and pipeline are owned by the City of Seattle. Redmond buys this water and both cities monitor and test it to maintain quality.

Watershed Protection

The Tolt Watershed covers nearly 14,000 acres and is closed to public access. Seattle's aggressive watershed protection plan safeguards the water supply from degradation and human intrusion. The Washington State Department of Health has determined the Watershed to have **low vulnerability** to sources of contamination. Contamination that might occur would most likely be from soil erosion or animal activity.

Treatment

Water treatment of the Tolt supply consists of chlorine disinfection, fluoridation for dental health, and mineral additives (calcium oxide and sodium bicarbonate), which help reduce the water's natural corrosive effect on plumbing. A filtration and ozone treatment facility has been in operation since 2001. Filtration removes organic material and makes the water clearer. Ozone kills tough pathogens like giardia and cryptosporidium. These improvements also mean less chlorine is needed for disinfection.

What's in the Water?
2004 Water Quality Data - Tolt System

Detected Compounds	Units	Levels		EPA Limits		Typical Sources
		Average – Range		MCLG – MCL		
FLUORIDE	ppm	1.0	0.8-1.1	4	4	Additive to promote dental health
BROMATE	ppb	0	0-1	0	10	By-product of ozonation
TURBIDITY	NTU	0.06	0.03-0.66	NA	TT	Soil runoff
TTHM	ppb	41	31-64.2	NA	80	By-products of chlorination disinfection
HAA5	ppb	30	29-36	NA	60	By-products of chlorination disinfection
CHLORINE	ppm	0.78	0.1-1.30	NA	4 MRDL	Additive that kills germs

MCLG (maximum contaminant level goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
MCL (maximum contaminant level): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
MRDL (maximum residual disinfectant level)
PPM (Parts Per Million) = 1 ppm = 1 mg/l

General Information About All Drinking Water

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and can pick up substances resulting from the presence of animal or human activity.

Substances and contaminants that could be present in source water include:

Microbes such as viruses and bacteria, which may come from septic systems, livestock and wildlife.

Inorganic chemicals such as salts and metals, which may be naturally occurring or result from urban stormwater runoff, wastewater discharges and farming.

Pesticides and herbicides from agriculture, urban stormwater runoff and residential uses.

Organic chemicals both synthetic and volatile, which are by-products of industry and can also come from gas stations, dry cleaners, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can be naturally occurring or result from petroleum production or mining activities.

In order to insure the safety of tap water, the EPA regulates the amount of contaminants allowed in public drinking water. The FDA regulates the contaminants in bottled water, which must provide a similar degree of safety.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hot Line at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline 1-800-426-4791.

Additional Information

For additional information please contact:

Redmond Public Utilities Water Quality office
www.redmond.gov/util/services/waterquality
425-556-2847

Environmental Protection Agency (EPA), www.epa.gov/safewater
Safe drinking water hotline: 1-800-426-4791

Washington Department of Health (DOH), www.doh.wa.gov/ehp/dw/
1-800-521-0323

American Water Works Association, www.drinktap.com

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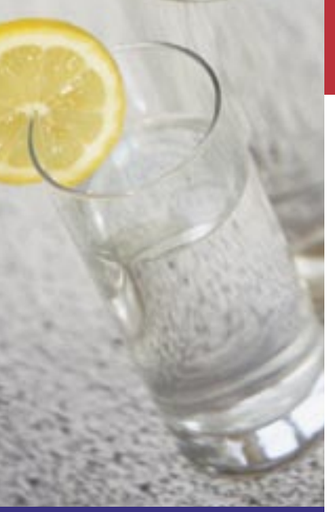
"Water is one of life's most fragile necessities, and to take it for granted is to neglect it."



Perspective

- **There are more people in Africa without access to safe drinking water than the total population of the United States.**
- **Half of the world's hospital beds are occupied by people suffering from a water-borne disease.**
- **Water-borne diseases collectively are more lethal than AIDS.**

Bottled Water, Good But...

Bottled water is convenient, tastes good, and is better for you than grabbing a soda. But there is a big down side to bottled water.

- It is less regulated and no safer than tap water
- 13 billion plastic water bottles end up in our landfills each year
- It takes more water to make the plastic bottle than is put in to them
- Bottled water costs a thousand times more than tap water

A good, healthful, and inexpensive alternative to bottled water is to keep a pitcher of tap water in the fridge. Put in a twist of lemon or lime and you've made your own designer water. Fill up your water bottle and you're on your way!

Best Bargain in the World?

Is there a better bargain anywhere than American tap water?

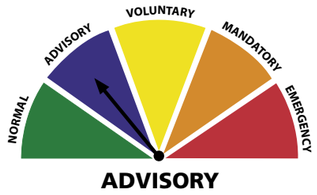
In Redmond, your drinking water is protected at the source from contamination. The water is then treated to insure safety, enhanced with fluoride to improve dental health, and is pH adjusted to make it less corrosive to your plumbing. Then it is tested, pumped, pressurized and served to your tap by a group of dedicated professionals. And 25 cents will buy 150 gallons. That's why we think American tap water is the most taken-for-granted and undervalued commodity in the world today.

More Than Just H_2O

There are more ingredients to drinking water than two parts hydrogen and one part oxygen. In fact, pure water does not exist in nature. Because water is the universal solvent, it takes on trace properties of whatever it comes in contact with. Most often the "impurities" in tap water are trace minerals like calcium, magnesium, iron and manganese.

Summer Drought?

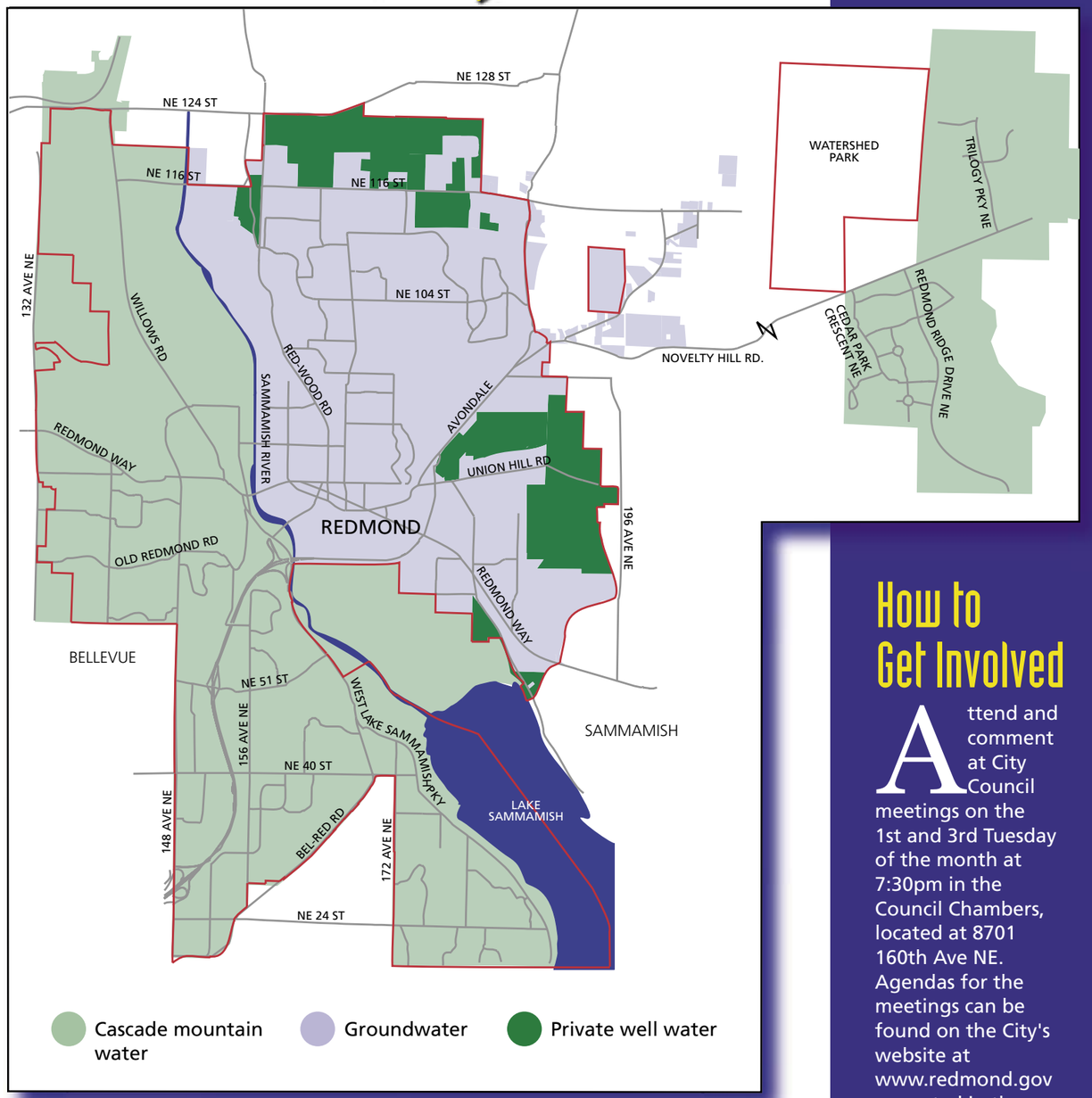
While spring rains have helped fill the mountain reservoirs, very little remains of the small winter snow pack. It is the slow melting of this snow pack that supplies most of our region with summer drinking water. We remain cautious about this water supply.



Redmond well levels are normal and have been helped by the spring rainfall. Planned rehabilitation of Well #5 will be delayed until the fall in order to maximize well production, thereby relying less on the limited supply in the mountains.

We encourage people to continue taking common-sense steps to conserve water and prevent waste. To learn more about saving water, please visit Redmond's website at www.redmond.gov, or www.savingwater.org or www.bewatersmart.gov for excellent tips and advice.

Where Does My Water Come From?



If you have questions about this report or about your drinking water, call or e-mail Tom Fix, Sr. Drinking Water Analyst at (425) 556-2847 or tfix@redmond.gov.

How to Get Involved

Attend and comment at City Council meetings on the 1st and 3rd Tuesday of the month at 7:30pm in the Council Chambers, located at 8701 160th Ave NE. Agendas for the meetings can be found on the City's website at www.redmond.gov or posted in the lobbies of City Hall and the Public Safety Building.

Keeping Our Water System Safe

In July 2004, Redmond was proud to be asked by the Department of Health to be one of three Washington cities to participate in a counter-terrorism table top exercise. Federal, state, county, and local agencies jointly explored ways to better safeguard our drinking water and respond to potential threats.

Q&A Frequently Asked Questions

Is there Fluoride in Redmond Drinking Water?

Redmond's drinking water has been fluoridated for over 25 years at the optimal health level of 1 part per million. The Centers for Disease Control and Prevention (CDC) encourages the fluoridation of all public water supplies. The CDC lists fluoridation of public drinking water as one of the ten greatest health achievements of the 20th century.

The American Academy of Family Physicians calls fluoridation of public water supplies "...a safe, economical, and effective measure to prevent dental cavities."

In Redmond, the cost of fluoridation is about 50 cents a year per person.

Is My Water Hard or Soft?

Redmond's groundwater is medium hard, 90-100 mg/l as CaCO3, or 5-6 grains per gallon. **Redmond's Tolt water is soft**, 25 mg/l as CaCO3, or 1.5 grains per gallon.

Hardness comes from two minerals in the water, calcium and magnesium. It is "harder" to make lather with soap using hard water.

What are those Little White Specks Plugging up my Faucet Screens?

Many water heaters built between 1993 and 1997 have a defective part called a dip tube. A dip tube is a plastic tube that brings cold water from the top of the water heater to the bottom. These dip tubes break apart and release small, white (non-toxic) particles into the plumbing. If you experience reduced water pressure and lower flow from your taps, check for these small white particles plugging your faucet screens. Contact the manufacturer or a plumber to remedy this problem.

Brown Water?

Manganese is a natural and non-toxic mineral common in some groundwater. Well #4, near City Hall, has a trace level of manganese. Residents in the area of River Trail and Meadowview could occasionally see tea colored water when they first turn on the tap. This is manganese. The water will then quickly clear up. The City is aware of this aesthetic problem and is taking corrective measures.

Keeping the Lead Out

2003 Lead and Copper City-wide Monitoring Program					
COMPOUNDS & UNITS	**MCLG**	**90th Percentile Action Level***	**90th Percentile Residential Level**	**# of Homes Exceeding Action Level***	**Sources**
LEAD (ppb)	0	15 ppb	5 ppb	2 out of 39	Corrosion of household plumbing
COPPER (ppm)	1.3 ppm	1.3 ppm	0.34 ppm	1 out of 39	Corrosion of household plumbing

There is no detectable lead or copper in any of the sources of Redmond drinking water. Any detection of lead or copper in tap water most likely comes from plumbing fixures in the home. Next monitoring period is 2006.
***ACTION LEVEL:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Residents living east of the Sammamish River drink well water pumped from aquifers. In the summer, water from the Tolt Reservoir is blended in to help meet demand.

Natural Resources staff help to protect our groundwater.

"Buried Treasure" The Groundwater System

In Redmond, east of the Sammamish River, there are underground, water bearing formations called **aquifers**. Over the past 50 years these aquifers have supplied nearly 40% of Redmond's drinking water. In 2004 the City's 5 wells pumped 894 million gallons from the aquifers. This resource is listed by the Department of Health as having **high vulnerability** to potential contamination, because the aquifers are only 50 feet deep.

Groundwater Protection

In 2003 Redmond's City Council passed the *Wellhead Protection Ordinance*. The Ordinance was adopted after years of studying the characteristics of the aquifers that supply our groundwater. Time of travel zones have been determined. These zones delineate areas that contribute to aquifer recharge, and consequently are areas of concern in the event of a contaminant spill. Activities in these zones are monitored by Redmond's Division of Natural Resources. Storage and use of contaminants that could threaten the aquifer are strictly regulated. To learn more contact Tom Barry, Natural Resources Engineer, at (425) 556-2870 or tbarry@redmond.gov.

Treatment

Redmond groundwater is treated with 3 common drinking water additives: sodium fluoride, sodium hydroxide, and chlorine disinfection. Fluoride contributes to dental health. Sodium hydroxide raises the pH of the water, thereby making it less corrosive to household plumbing. Chlorine acts as a safety net against disease-causing germs called pathogens.

All compounds from both systems meet the highest standards.

What's in the Water?

2004 Water Quality Data - Groundwater System

Detected Compounds	Units	Levels		EPA Limits		Typical Sources
		Average	Range	MCLG	MCL	
FLUORIDE	ppm	1.12	0.84-1.8	4	4	Additive to promote dental health
NITRATE	ppm	0.94	0-1.5	10	10	Erosion from natural deposits
ARSENIC	ppb	0.6	0-2	0	10	Erosion from natural deposits
TTHM	ppb	19.3	1.0-54.0	NA	80	By-products of chlorine disinfection
HAA5	ppb	6.3	0-23	NA	60	By-products of chlorine disinfection
CHLORINE	ppm	0.71	0.1-1.20	NA	4 MRDL	Additive that kills germs

PPB (Parts Per Billion) = 1 ppb = 1 ug/1
NTU A measurement of water clarity. High turbidity can interfere with disinfection.
T.T. (treatment technique): A required process intended to reduce the level of a contaminant in drinking water.
TTHM: (total trihalomethane) disenfection by-products.
HAA5: (Haleoacetic acid) disenfection by-products.
NA: Not Applicable.